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Title of Invention

Bottom-Fill Container and Opening System

Application Number :

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First Named Applicant: Elmer Werth

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Search string: (2172452 or 3726432 or 3889842 or 4717039 or 5205430 or 5289945 or 5601203 or 5692633 or 5785213 or 6158608 or 6216904 or 5816427).pn

US Patent Documents

Note: Applicant is not required to submit a paper copy of cited US Patent Documents

init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
	1	2172452	1939-09-12	Rese	A	220	274
	2	3726432	1973-04-10	Gentile	A	220	253
	3	3889842	1975-06-17	Bennett	A	220	253
	4	4717039	1988-01-05	Ayyoubi	A	220	253
	5	5205430	1993-04-27	Valyi	A	220	278
	6	5289945	1994-03-01	Stradder	A	222	23
	7	5601203	1997-02-11	Brun, Jr.	A	220	253
	8	5692633	1997-12-02	Gordon	A	220	253
	9	5785213	1998-07-28	Guillot	A	222	553
	10	6158608	2000-12-12	Schlattl	A	220	253
	11	6216904	2001-04-17	Cagan	A	220	253
	12	5816427	1998-10-06	Beckertgis	A	220	253

Remarks

Note: Remarks are not for responding to an office action.

U.S. Patent 2,172,452 to Rese, issued in 1939, discloses a hermetically sealed metal container of old fashion opener design, but having a lid with a pour opening and a vent opening. A closure strip is riveted to the lid by a rivet formed of the material in the lid wall, and located between the openings. The strip can be rotated between a first position where its opposite ends lie over two openings to re-close them and a second, dispensing position where the strip does not close the openings. The technical requirements for constructing such a lid, properly locating

and sealing the closure strip, and allowing the strip to be freed with reasonable hand force, seem poorly developed and may account for this lid being impractical for commercial use. U.S. Patent 3,726,432 to Gentile, issued in 1973, discloses a metal or plastic container having both an inner and outer lid. The inner lid is united with the side wall. The outer lid includes a skirt with an inwardly projecting rib that is engaged under a top rim of the container. This arrangement allows the outer lid to rotate while being retained on the container. The lids both have an off-center opening, which can be registered or re-sealed as the outer lid is twisted. A severing tool is formed on the lower surface of the outer lid. The severing tool can open a sealing tab on the inner lid by both fracturing a frangible line around the tab and pushing the tab down into the container. Automatic severing tools of this type appear unlikely to function reliably. In addition, applying an outer metal lid firmly enough for the reliable use of a severing tool, while still allowing hand twisting operations, is technically difficult. U.S. Patent 3,889,842 to Bennett, issued in 1975, shows double convex lids on a metal container. The inner lid is conventionally seamed to the rim. The inner lid defines an inner pour opening that initially is sealed against the outer lid. The inner lid carries a raised button at a location diametrically opposite the pour opening. The raised button extends upwardly through an outer pour opening of the outer lid. The button must be depressed to depress the inner lid into a concave configuration, to unseal the inner pour opening, and to allow the outer lid to be twisted with respect to the inner lid and align the inner and outer pour openings. The outer lid engages the chime by wrapping around its exterior, holding the outer lid at a fixed height while it is twisted. Allegedly, the container may be resealed by twisting the outer lid until the outer pour opening is registered with the diametrically opposite button, whereupon the button is released to raise-up through the outer pour opening, allowing the inner lid to raise back to convex configuration and again seal the inner pour opening against the outer lid. This scheme is technically complex both in the fabrication and assembly of the two lids. Significantly, it offers considerable danger of cut fingers during the opening process. In addition, as noted above, applying an outer lid in a way that is reliably hand-twistable can be difficult. It is doubtful that this scheme would function well enough for commercial use. U.S. Patent 4,717,039 to Ayyoubi, issued in 1988, discloses a resealing plate for use on a modern retained-tab end, described above. The resealing plate is approximately a half circle mounted on the rivet under the lift ring. Similar to Rese, the plate can be rotated on the rivet, over the pour opening, to reseal the pour opening. The plate also includes a small, soda-straw opening that can be registered with the pour opening, if desired. The requirement of riveting the resealing plate loosely enough to be twisted can be technically unreliable. In addition, the container still requires conventional sealing and unsealing features. The mere addition of a sealing plate offers no advantage in material strength and appears wasteful of materials. U.S. Patent 5,205,430 to Valyi, issued in 1993, discloses a double lid especially suited for use on a plastic can. An inner lid closes and seals the can and includes an area that can be severed to form an inner pour opening. An outer lid is held by a peripheral, inward facing groove in a raised edge of the inner lid. The outer lid is twistable in the groove to both sever the wall over the inner pour opening and bring an outer pour opening into registration with the inner pour opening. This technology appears limited to plastic cans and suffers the unreliability of an automated severing device. U.S. Patent 5,289,945 to Stradder, issued in 1994, discloses a cap for a pressurized bottle. One embodiment of the cap is formed of upper and lower sections. The lower section includes an inwardly directed rib that snaps into an annular groove below the lip of a non-threaded bottle neck. A sealing plate closes the top of the lower cap portion and bottle mouth. The sealing plate also includes an off-center pour opening. The upper cap is threaded to the lower cap and includes a pour nipple that is misaligned with the pour opening when the cap is screwed down. The upper cap can be partially unscrewed to register the pour opening with the nipple and dispense the beverage. This cap tends to be costly to mold and complex to operate. U.S. Patent 5,601,203 to Brun, Jr., issued in 1997, discloses a blow molded plastic beverage can with a double lid and an anti-tamper feature. The inner lid has five successive seal positions that include only two openings, at positions two and four. The outer lid has one pour opening that is registerable with

any of the five inner seals. A ratchet between the lids allows one-way movement of the outer lid through positions one through three. The lid is applied while the container is empty, and the sealed container is shipped from manufacturer to filler with the outer lid in position one. In order to fill this container, the filler must rotate the lid to position two, which provides an open fill opening, and then must rotate the lid to sealed position three before shipment to the consumer. The consumer rotates the lid to position four, which provides an open pour opening, and has the option to reseal by rotating to position five. A seal ring at the peripheral edge of the inner lid seals to the outer lid. The complex structures of this container and lid evidently result from a requirement that the lid is applied before the container is filled. This container appears impractical and unusable with conventional filling machines and could not be used on a commercial basis without retooling filling lines. U.S. Patent 5,692,633 to Gordon, issued in 1997, shows a metal beverage container with a double lid. The outer lid is retained by partially wrapping the chime, engaging the edge of the outer lid in a recess below the chime. Initially, a raised tab with scored outline on the inner lid is covered by a similar raised area of the outer lid. Rotating the outer lid causes an edge of the outer raised area to break the score line of the inner lid, pushing the tab down into the can and thereby opening an inner pour opening. The outer lid includes an outer pour opening that can be registered with inner pour opening for dispensing. A reverse twist re-covers the tab opening with the raised area of the outer lid. The two lids share a rotation limiter -- a boss in one is captured in a groove of the other -- so that rotation is limited through the useful arc. As noted above, a cap of this type tends to have problems in reliably opening the inner tab and in reliably providing a hand-twistable capability for the outer lid. U.S. Patent 5,785,213 to Guillot, issued in 1998, discloses a two-part, resealable dispensing lid for a bottle. The inner portion, referred to as a stopper, clamps into an annular groove below the bottle mouth. The stopper provides a central tube communicating with the interior of the bottle and leading to an oblique tube within the stopper. The oblique tube leads to an off-center inner pour opening. The stopper also engages a catch on the bottle neck so that the stopper cannot rotate. The outer part of the lid, referred to as the cap, clamps into an annular recess below the lower edge of the stopper and is rotatable with respect to the stopper. The cap includes an outer pour opening that, in open position, is registered with the inner pour opening of the stopper. When the cap is rotated to closed position, it covers the inner pour opening. It also closes the connection between the central tube and oblique tube of the stopper. Further, the stopper also carries a stub that snaps into the outer pour opening to achieve a triple seal. This cap involves complex molds and corresponding high cost. U.S. Patent 5,816,427 to Beckertgis, issued in 1998, discloses a double lid in which the outer lid is rotatable. The outer lid includes a depending projection. When the outer lid is rotated, this projection breaks a score line around a frangible tab on the inner lid, opening the tab. A central rivet holds the outer lid to the inner lid. This lid suffers the problems of an automated opener between the lids and of sharing a rivet between a fixed lid and a hand-rotatable lid. U.S. Patent 6,158,608 to Schlattl, issued in 2000, discloses a sealed metal beverage can with a double lid, one of which is fixed and other is twistable. In different embodiments, the rotatable lid is either the outer lid or the inner lid. In either case, the lids are attached by a traditional central rivet, which also attaches a lift-ring. Further, the perimeter of the rotatable lid engages the fixed lid inside the chime, in what is termed a "snap-ring" engagement for the purpose of keeping the two lids a close enough to maintain a good seal for re-sealing. A seal element surrounds the opening tab. When the outer lid is the rotatable lid, raised structures on the outer lid allow finger engagement for twisting the outer lid. When the inner lid is the rotatable lid, the central rivet is square so that the lift-ring can rotate the inner lid via the rivet, despite its position inside the container. This lid appears to have the problems of riveting two lids when one should be twisted by hand. In addition, it is questionable whether an inner lid can be reliably rotated on a small central structure such as a square rivet post. U.S. Patent 6,216,904 to Cagan, issued in 2001, discloses a metal beverage container having a fixed inner lid with a permanently open inner pour opening surrounded by an upstanding bead. An outer lid is engaged over the chime to hold it at a fixed height over the inner lid. The outer lid carries a depending bead that, in closed

position, surrounds the upstanding bead of the inner pour opening. The outer lid also carries a seal ring that rests on top of the upstanding bead. Finally, the outer lid defines a raised dome in the center of the depending bead. The patent makes the interesting allegation that pressure in the container will press against the fixed inner lid and raise it against the outer lid to apply pressure to the seal ring, preventing the outer lid from being able to rotate. The can is opened by depressing the dome into a concave position, thereby releasing pressure in the container, releasing pressure on the seal ring, and allowing the outer lid to be twisted. The outer lid has an outer pour opening that is rotated into registry with the inner pour opening. The outer lid can be twisted to return the concave dome into registry with the inner pour opening, allegedly restoring a pressure tight seal with the upstanding bead. The technical difficulties in producing and operating this lid appear substantial.

Signature

Examiner Name	Date